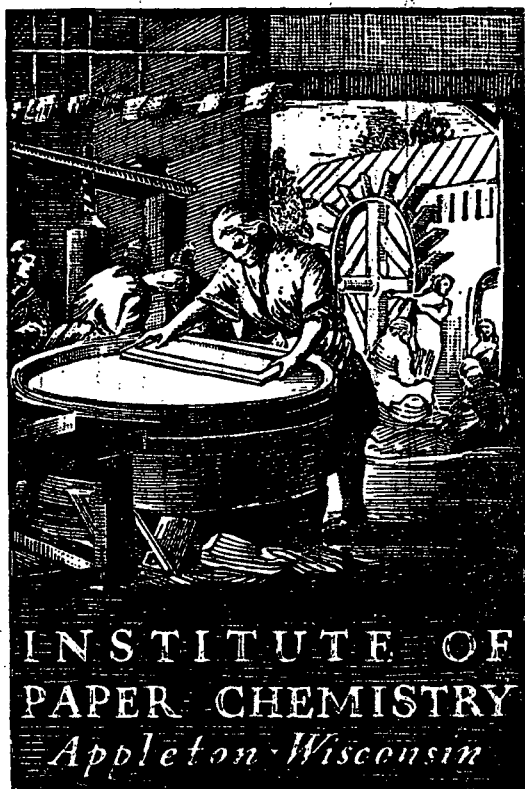


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CONTINUOUS BASE-LINE STUDY

Project 1108-13

Report 181

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

February 1, 1963

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS BASE-LINE STUDY

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THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS BASE-LINE STUDY

INTRODUCTION

As requested by the Technical Committee of the Fourdrinier Kraft Board Institute, Inc., the reports pertinent to the continuous base-line study on 42-lb. fourdrinier kraft linerboard are now being prepared by The Institute of Paper Chemistry on a bimonthly basis instead of the previous monthly basis. This new system was initiated on August 1, 1961. This report is the ninth under the new system and presents results obtained during the months of December, 1962, and January, 1963.

PRESENTATION AND DISCUSSION OF TEST RESULTS

Each sample lot received for evaluation during December and January was evaluated for basis weight, caliper, bursting strength, and Elmendorf tearing strength. The average strength results for each mill may be seen in Table I and are graphically presented in Fig. 1 to 5. In addition to a comparison of the current mill averages for the various tests, Table I also shows the current F.K.I. averages, the cumulative F.K.I. averages, and F.K.I. indexes. For each test, the current mill average represents the average obtained on all sample lots evaluated during a given period, the current F.K.I. average represents the average of the current mill averages, and the cumulative F.K.I. average represents the average of the current F.K.I. averages for the previous twelve months excluding the current period. The F.K.I. index expressed in per cent is the ratio of the current F.K.I. average to the cumulative F.K.I. average.

In Table II, a tabulation of the number of sample lots submitted by each mill during December and January is shown.

Supplementary to the basis weight data given in Table I, a tabulation is given in Table III of the amount by which the basis weight average for each mill varies from the 42-lb. specification set forth in Rule 41.

Shown below from Table I are the maximum and minimum current mill averages for each test and also the current and cumulative F.K.I. averages.

TABLE I

SUMMARY OF COMPOSITE MILL AVERAGES--DECEMBER, 1962 AND JANUARY, 1963

Mill	Basis Weight, lb.	Caliper, points	Bursting Strength, p.s.i. gage	Elmendorf Tear, g./sheet	
				In Machine	Cross Machine
A	43.8	12.4	112	304	356
B	43.2	12.9	105	317	355
C	42.5	12.3	107	304	361
D	No samples submitted.				
E	42.5	12.6	103	308	367
F	42.5	13.1	116	278	332
G	No samples submitted.				
H	42.7	13.0	111	340	383
I	43.0	13.2	119	301	353
J	44.0	12.6	100	362	384
K	43.4	12.5	113	365	400
L	42.3	12.9	110	338	393
M	43.3	11.8	109	370	396
N	42.9	12.0	107	350	395
O	43.0	12.2	116	313	363
P	42.3	13.6	103	335	384
Q	43.4	12.6	108	413	426
S	42.4	13.0	110	300	359
T	42.8	12.2	113	344	394
U	No samples submitted.				
V	43.1	12.4	113	314	360
W	43.2	12.8	105	365	407
Current FKI Average:	43.0	12.6	110	333	377
Cumulative FKI Average:	42.9	12.7	110	324	371
FKI Index, %	100.2	99.2	100.0	102.8	101.6

TABLE II

NUMBER OF SAMPLE LOTS SUBMITTED BY EACH MILL
DURING DECEMBER, 1962, and JANUARY, 1963

Mill Code	Number of Sample Lots
A	5
B	8
C	20
D	0
E	4
F	4
G	0
H	7
I	6
J	6
K	4
L	6
M	2
N	4
O	3
P	8
Q	2
S	8
T	4
U	0
V	8
W	6
Total	<hr/> 115

TABLE III

PERCENTAGE DEVIATION FROM 42-LB. BASIS WEIGHT
SPECIFICATION

Mill Code	Percentage Deviation
A	+4.3
B	+2.9
C	+1.2
D	--
E	+1.2
F	+1.2
G	--
H	+1.7
I	+2.4
J	+4.8
K	+3.3
L	+0.7
M	+3.1
N	+2.1
O	+2.4
P	+0.7
Q	+3.3
S	+1.0
T	+1.9
U	--
V	+2.6
W	+2.9

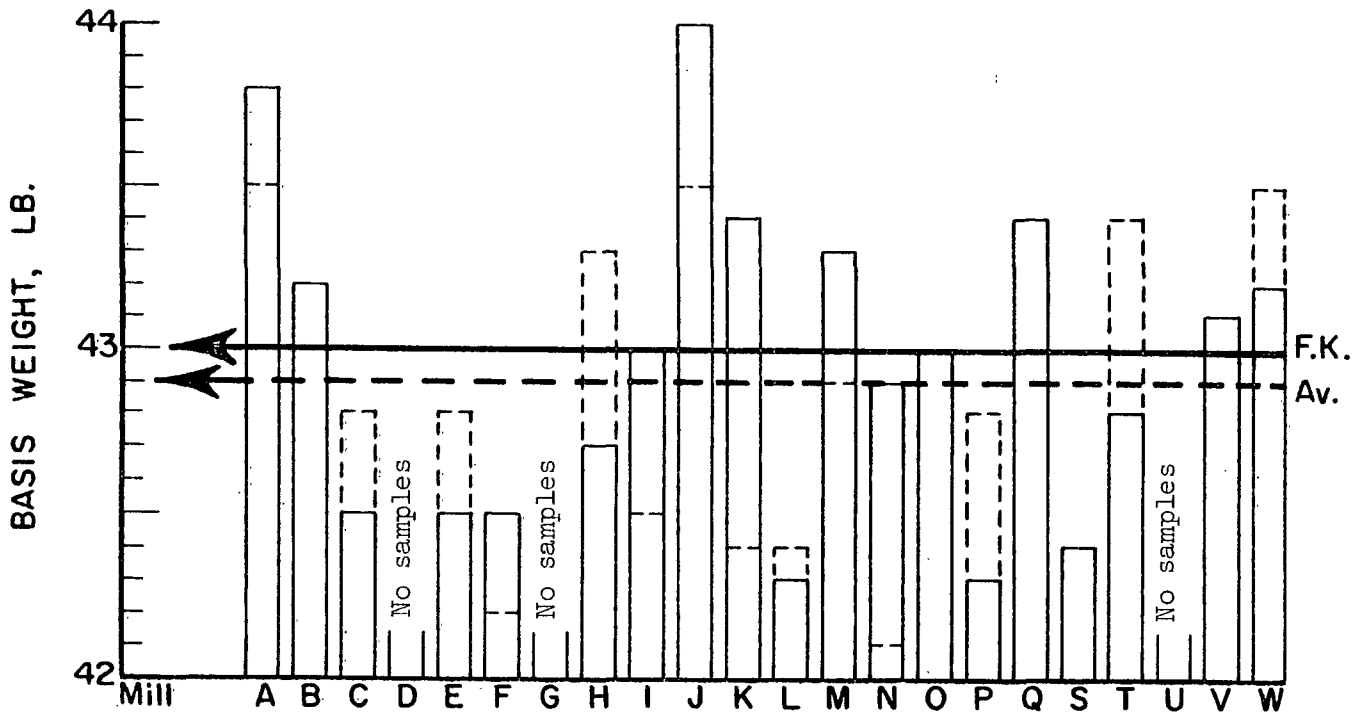


Figure 1. Comparison of Basis Weight Results

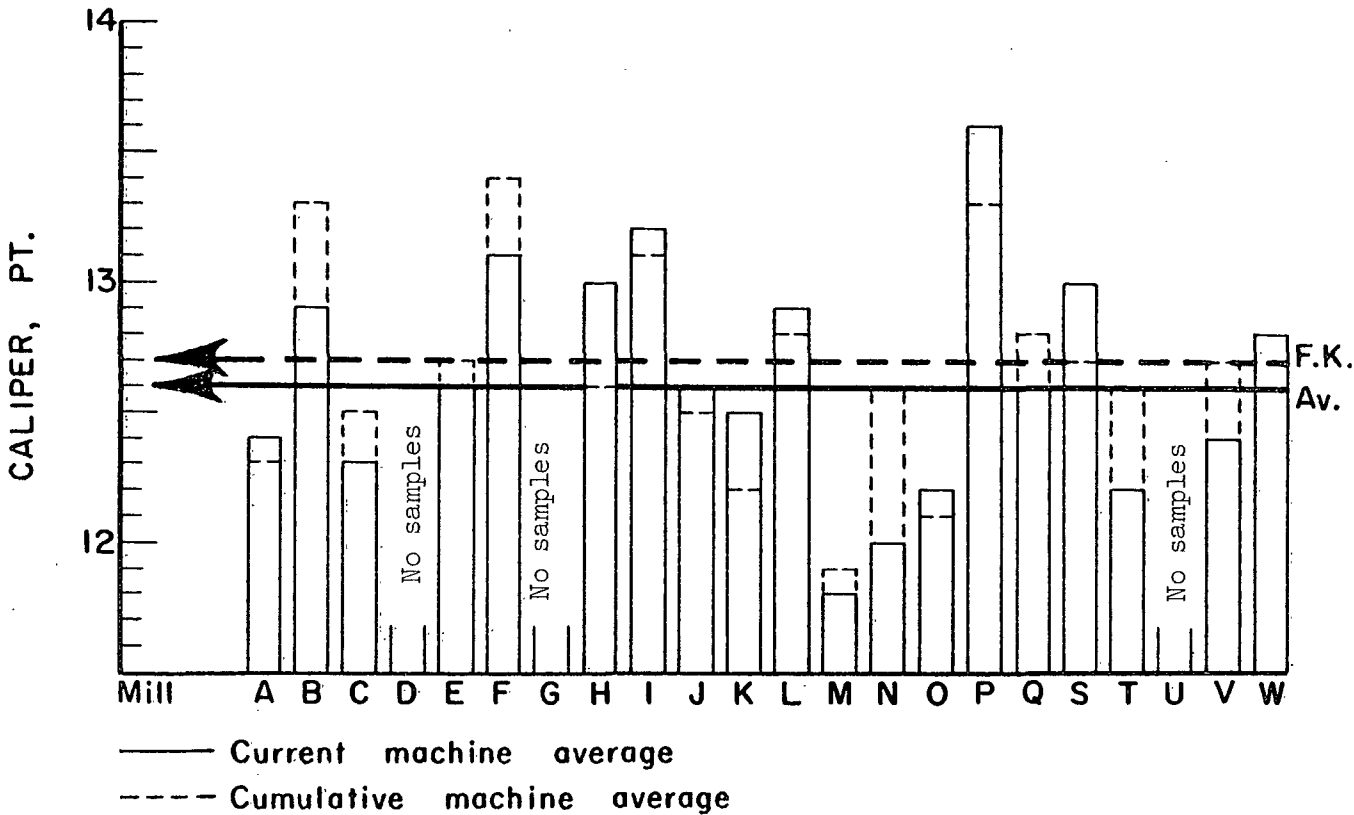


Figure 2. Comparison of Caliper Results

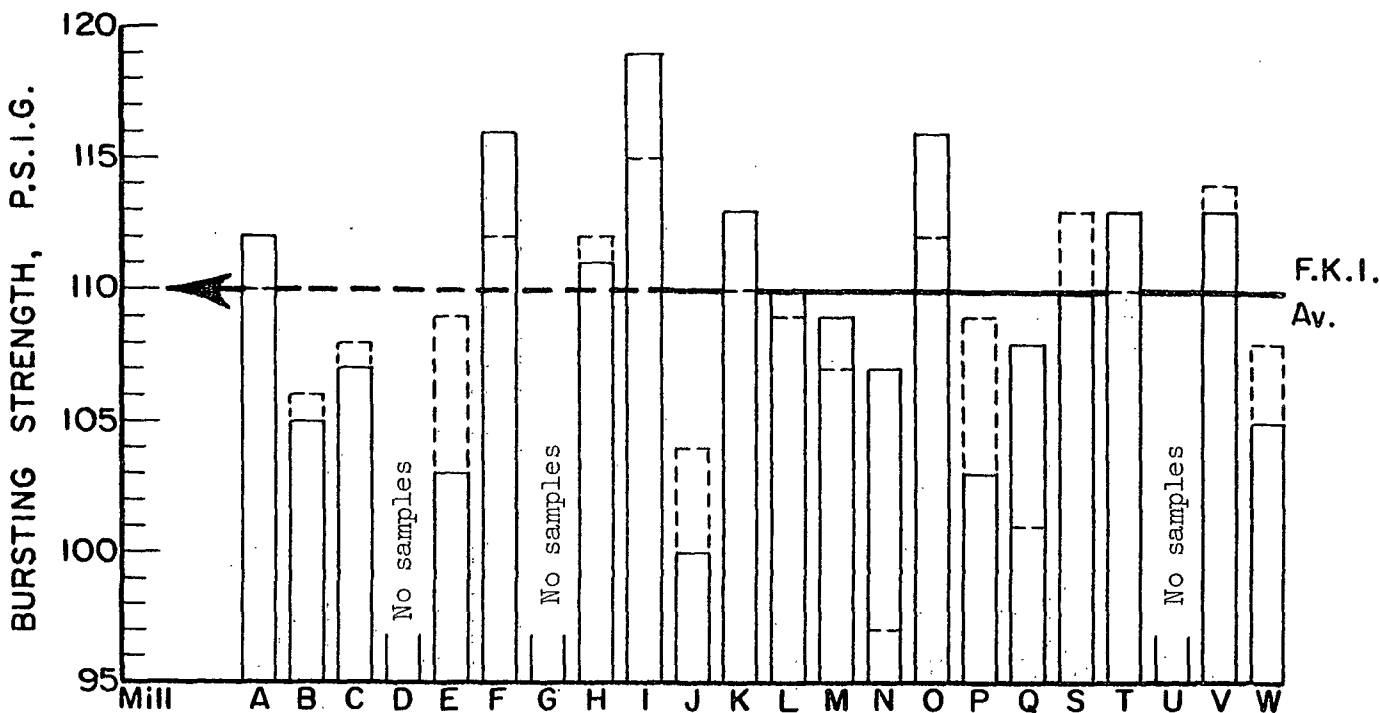


Figure 3. Comparison of Bursting Strength Results

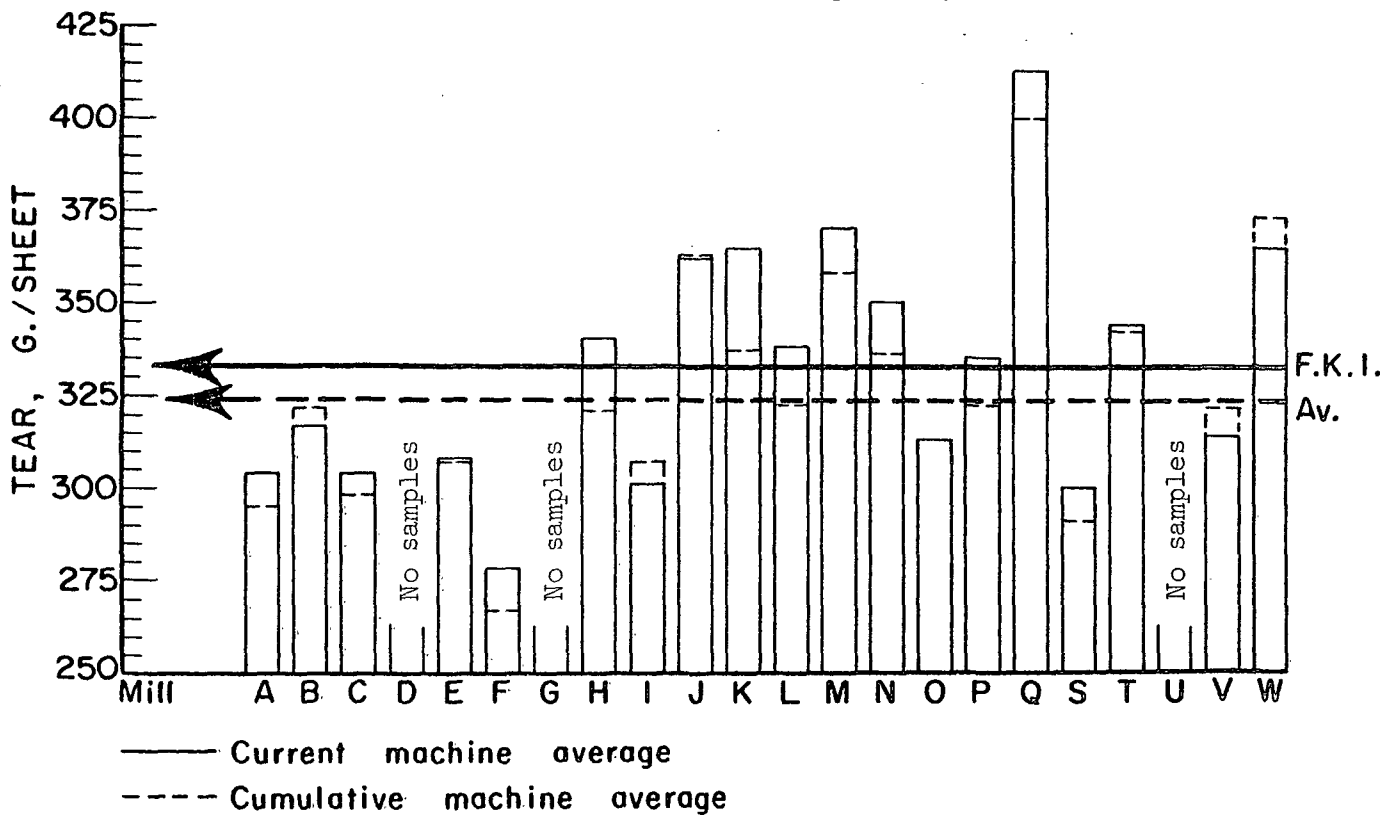


Figure 4. Comparison of Machine-Direction Tear Results

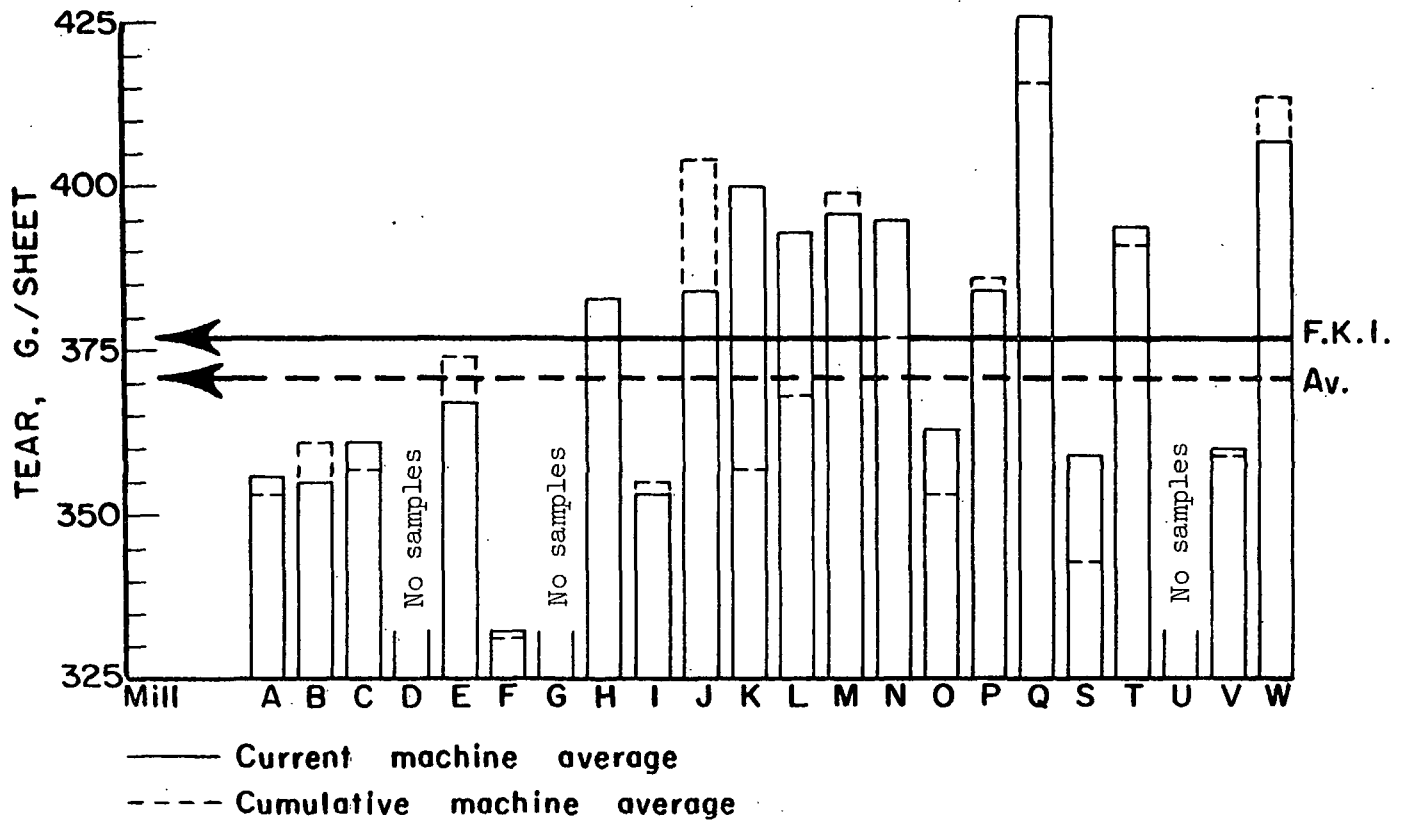


Figure 5. Comparison of Cross-Machine Direction Tear Results.

Test	Current Mill Averages		F.K.I. Averages	
	Max.	Min.	Current	Cumulative
Basis weight, lb.	44.0	42.3	43.0	42.9
Caliper, points	13.6	11.8	12.6	12.7
Bursting strength, p.s.i. gage	119	100	110	110
Machine direction Elmendorf tear, g./sheet	413	278	333	324
Cross-machine direction Elmendorf tear, g./sheet	426	332	377	371

The test results obtained at the Institute and at the mill during December and January are given alphabetically in Tables IV to XXV for each mill. Included in each of these tables are the maximum, minimum and average test data obtained at the Institute on each sample lot of linerboard. The data obtained at the Institute include also for each test the calculation of (1) a current mill average that represents the mean of the averages obtained on the individual sample lots of linerboard evaluated during the current period, (2) a cumulative mill average that represents the mean of the current mill averages for the previous twelve months excluding the current period, (3) a mill factor expressed in per cent that represents the ratio of the current mill average to the cumulative mill average, and (4) a mill index expressed in per cent that represents the ratio of the current mill average to the cumulative F.K.I. average. The term "mean" in the preceding discussion is synonymous with the simple arithmetic average. As mentioned above, the results presented in Tables IV to XXV also include data obtained at the mills. The mill data include for each test (1) the average result obtained on each sample lot of linerboard and (2) a current mill average (calculated at the Institute) that represents the mean of the averages obtained on the individual sample lots of linerboard. In addition to the presentations of Institute

TABLE IV
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL A
December, 1962 and January, 1963

Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.S.I. Page			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine													
		Institute	Max.	Min.	Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.								
																				Av.	Diff.	Av.	Diff.	Av.	Diff.	Av.	Diff.
11-14-62	W.F.	1	44.2	43.0	43.6	43.1	-0.5	12.7	11.5	12.1	12.0	-0.1	135	89	113	114	+1	336	248	289	314	+25	392	320	359 ^a	365	+6
11-25-62	W.F.	1	44.2	42.4	43.7	43.2	-0.5	12.9	11.9	12.2	12.0	-0.2	141	102	121	117	-4	336	264	301	297	-4	384	320	356 ^a	358	+2
12-10-62	W.F.	1	44.8	43.8	44.1	43.2	-0.9	13.6	12.0	12.9	12.5	-0.4	139	86	111	108	-3	336	264	311 ^a	298	-13	384	328	363 ^a	354	-9
12-18-62	W.F.	1	44.6	42.4	43.8	43.1	-0.7	13.8	12.1	12.8	12.7	-0.1	125	90	105	111	+6	368	288	313	298	-15	400	320	349 ^a	353	+6
1-1-63	W.F.	1	45.0	43.0	44.0	43.0	-1.0	12.9	11.8	12.1	12.0	-0.1	131	92	113	114	+1	360	248	304 ^a	295	-9	384	320	355 ^a	365	+10
Current Mill Average:					43.8	43.1	-0.7			12.4	12.2	-0.2			112	113	+1			304	300	-4			356	359	+3
Cumulative Mill Average:					43.5					12.3					110					295					353		
Mill Factor, %					100.7					100.8					101.8					103.1					100.8		
Mill Index, %					102.1					97.6					101.8					93.8					96.0		

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE V

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL B

December, 1962 and January, 1963

Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.s.i.			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet													
		Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.						
10-21-62	--	1	44.8	42.4	43.6	43.9	+0.3	14.0	12.3	13.0	12.8	-0.2	127	94	110	111	+1	416	240	338 ^a	319	-19	416	336	368 ^a	384	+16
10-29-62	--	1	43.6	41.8	42.4	42.4	0.0	13.2	12.0	12.6	12.2	+0.4	126	64	100	100	0	368	272	314 ^a	299	-15	416	336	368 ^a	366	0
11- 4-62	--	1	44.4	43.8	44.1	43.6	-0.5	14.0	12.2	13.0	12.6	-0.4	126	83	109	104	-5	400	272	330 ^a	310	-20	400	312	343 ^a	350	+7
11- 5-62	--	1	44.4	40.4	42.8	43.1	+0.3	13.8	12.4	13.1	12.9	-0.2	127	83	101	104	+3	352	240	289	290	+1	368	272	333 ^a	345	+12
11-22-62	--	1	43.6	41.2	42.8	42.9	+0.1	14.2	11.8	12.8	12.7	-0.1	125	80	106	107	+1	384	288	326	298	-28	416	312	357 ^a	359	+2
11-28-62	--	1	46.0	42.8	44.5	44.4	-0.1	14.0	12.8	13.3	12.9	-0.4	135	78	108	107	-1	368	272	321	295	-26	416	336	373 ^a	378	+5
12- 1-62	--	1	44.2	42.0	43.0	42.6	-0.4	13.3	12.2	12.7	12.6	-0.1	124	82	101	101	0	352	264	299	288	-11	384	336	355 ^a	356	+1
12- 8-62	--	1	44.2	41.8	42.7	43.5	+0.8	13.3	12.1	12.8	12.6	-0.2	130	85	108	110	+2	368	296	321	296	-25	368	320	345 ^a	363	+18
Current Mill Average:			43.2	43.2	43.3	43.3	+0.1	12.9	12.7	12.7	12.7	-0.2	105	106	106	106	+1	317	299	317	299	-18	355	363	363	363	+8
Cumulative Mill Average:			43.2	43.2	43.2	43.2	0.0	13.3	13.3	13.3	13.3	0.0	106	106	106	106	0.0	322	322	322	322	0.0	361	361	361	361	0.0
Mill Factor, %			100.0	100.0	100.0	100.0	0.0	97.0	97.0	97.0	97.0	0.0	99.1	99.1	99.1	99.1	0.0	98.4	98.4	98.4	98.4	0.0	98.3	98.3	98.3	98.3	0.0
Mill Index, %			100.7	100.7	100.7	100.7	0.0	101.6	101.6	101.6	101.6	0.0	95.5	95.5	95.5	95.5	0.0	97.8	97.8	97.8	97.8	0.0	95.7	95.7	95.7	95.7	0.0

^aThis average includes the readings for one or more specimens which were beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE VI
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL C
December, 1962 and January, 1963

Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.s.i., gage			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine													
		Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill											
		Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.											
11- 6-62	W.F.	1	43.8	41.8	42.7	43.3	+0.6	13.0	12.1	12.6	12.4	-0.2	129	82	109	112	+3	344	272	315	306	- 9	480	344	397 ^a	387	-10
11- 8-62	W.F.	1	43.0	41.6	42.3	42.7	+0.4	13.0	12.0	12.5	12.4	-0.1	129	88	107	109	+2	360	248	306	289	-17	436	336	382 ^a	364	-18
11-12-62	W.F.	1	43.2	42.0	42.4	43.0	+0.6	12.4	11.4	12.0	12.0	0.0	130	103	116	115	-1	328	240	290 ^a	274	-16	400	336	355 ^a	380	+25
11-15-62	W.F.	1	42.2	40.8	41.8	42.2	+0.4	13.0	11.8	12.1	12.3	+0.2	127	84	105	109	+4	336	240	291	285	- 6	384	328	353 ^a	360	+ 7
11-18-62	W.F.	1	43.6	42.0	42.3	42.3	0.0	12.6	11.8	12.2	12.1	-0.1	131	85	105	108	+3	424	280	335 ^a	299	-36	432	336	385 ^a	371	-14
11-18-62	W.F.	1	43.0	40.8	41.8	42.1	+0.3	12.8	11.3	12.1	12.0	-0.1	128	73	105	109	+4	368	296	334 ^a	283	-51	424	344	374 ^a	379	+ 5
11-21-62	W.F.	1	43.6	42.2	43.1	42.9	-0.2	13.2	11.8	12.5	12.2	-0.3	126	96	108	107	-1	368	264	317	289	-28	424	336	382 ^a	386	+ 4
11-22-62	W.F.	1	43.0	41.0	42.2	42.1	-0.1	12.5	11.4	11.9	11.9	0.0	121	79	102	105	+3	384	272	315 ^a	295	-20	392	312	351 ^a	368	-17
12- 2-62	W.F.	1	43.8	42.0	42.5	42.6	+0.1	12.8	11.3	12.1	12.0	-0.1	135	81	110	111	+1	336	264	293	274	-19	368	320	347 ^a	347	0
12- 4-62	W.F.	1	43.6	42.0	42.3	42.5	+0.2	13.0	12.0	12.4	12.4	0.0	130	91	110	110	0	384	256	317	282	-35	448	352	375 ^a	360	-15
12- 5-62	W.F.	1	44.0	42.8	43.5	43.3	-0.2	13.5	12.0	12.9	12.5	-0.4	132	80	105	106	+1	360	256	307	281	-26	384	320	349 ^a	360	+11
12- 8-62	W.F.	1	44.2	43.4	43.9	43.8	-0.1	14.0	12.0	12.9	12.7	-0.2	128	84	106	107	+1	336	248	295 ^a	285	-14	448	328	379 ^a	377	- 2
12-27-62	W.F.	1	44.2	42.2	43.4	43.5	+0.1	13.1	12.0	12.6	12.5	-0.1	135	84	110	115	+5	344	264	305	304	- 1	432	352	380 ^a	383	+ 3
12-28-62	W.F.	1	43.6	41.8	42.5	42.6	+0.1	12.6	11.7	12.1	12.1	0.0	125	97	110	117	+7	360	248	300	283	-17	368	320	349 ^a	375	+26
12-29-62	W.F.	1	43.6	42.0	42.8	42.7	-0.1	12.6	11.4	12.0	12.1	+0.1	134	78	107	111	+4	352	240	283	295	+12	368	320	333 ^a	378	+45
12-29-62	W.F.	1	44.0	41.8	42.7	43.0	+0.3	13.0	12.0	12.5	12.4	-0.1	126	96	111	112	+1	328	240	285 ^a	303	+18	368	312	351 ^a	386	+35

TABLE VI (continued)
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL C
December, 1962 and January, 1963

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. base			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine												
		Institute	Max.	Av.	Institute	Max.	Av.	Institute	Max.	Av.	Institute	Max.	Av.	Institute	Max.	Av.										
1-1-63	W.F. 1	43.0	41.0	41.9	42.1	+0.2	13.3	12.2	12.8	12.3	-0.5	121	76	101	107	+6	336	232	279	248	-31	368	304	339 ^a	347	+8
1-9-63	W.F. 1	43.4	41.2	42.4	42.8	+0.4	13.0	11.7	12.2	12.1	-0.1	134	84	104	110	+6	320	256	297	262	-35	464	328	368 ^a	353	-15
1-11-63	W.F. 1	42.0	40.8	41.7	42.0	+0.3	12.8	11.7	12.1	12.1	0.0	119	83	101	105	+4	336	240	282 ^a	258	-24	384	312	336 ^a	344	+8
1-13-63	W.F. 1	43.0	41.6	42.3	42.7	+0.4	13.2	11.8	12.5	12.2	-0.3	123	84	100	107	+7	368	256	322 ^a	258	-64	384	320	335 ^a	355	+20
Current Mill Average:		42.5		42.7	+0.2		12.3	12.2	-0.1	107	110	+3	304	283	-21				361	368	+7					
Cumulative Mill Average:		42.8					12.5			108			298						357							
Mill Factor, %		99.3					98.4			99.1			102.0						101.1							
Mill Index, %		99.1					96.9			97.3			93.8						97.3							

TABLE VII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL D

No samples submitted

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE VIII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL E

December, 1962 and January, 1963

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliber, Points			Bursting Strength, P.s.i. Tensile			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine													
		Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill											
		Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.											
11-21-62	WFLS	1	43.8	41.8	42.4	43.1	+0.7	13.0	12.0	12.5	12.5	0.0	119	82	101	106	+5	336	288	315	344	+29	392	344	367 ^a	407	+40
11-28-62	WFLS	1	43.8	41.8	42.6	42.3	-0.3	13.6	12.1	12.8	12.3	-0.5	115	84	101	106	+5	368	256	299 ^a	331	+32	416	328	368 ^a	400	+32
12-5-62	WFLS	1	43.8	42.0	42.6	42.4	-0.2	13.1	12.0	12.4	12.2	-0.2	119	87	105	108	+3	376	256	312	311	-1	432	312	366 ^a	394	+28
12-17-62	WFLS	1	43.4	41.8	42.3	42.2	-0.1	13.8	12.2	12.9	12.3	-0.6	133	85	105	102	-3	368	240	309	351	+42	448	336	365 ^a	401	+36
Current Mill Average:			42.5	42.5	0.0			12.6	12.3	-0.3			103	106	+3			308	334	+26			367	401	+34		
Cumulative Mill Average:			42.8					12.7					109					307					374				
Mill Factor, %			99.3					99.2					94.5					100.3					98.1				
Mill Index, %			99.1					99.2					93.6					95.1					98.9				

TABLE IX

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL F

11-12-62	WFLS 1	43.2	42.0	42.3	41.9	-0.4	14.0	12.8	13.4	12.9	-0.5	131	89	112	111	-1	320	240	274	276	+2	400	296	334 ^a	345	+11
11-17-62	WFLS 1	43.8	42.2	43.0	42.8	-0.2	13.7	12.0	12.9	12.6	-0.3	145	96	119	113	-6	368	272	309 ^a	300	-9	352	304	334 ^a	370	+36
12-5-62	WFLS 1	43.6	42.0	42.7	42.2	-0.5	13.2	12.2	12.9	12.3	-0.6	137	91	118	114	-4	320	208	275	292	+17	360	312	339 ^a	344	+5
1-1-63	WFLS 1	42.6	42.0	42.2	41.8	-0.4	13.3	12.8	13.0	12.6	-0.4	136	98	115	109	-6	296	216	255	302	+47	336	296	321 ^a	345	+24
Current Mill Average:		42.5	42.2	-0.3			13.1	12.6	-0.5			116	112	-4			278	293	+15			332	351	+19		
Cumulative Mill Average:		42.2					13.4					112					267					331				
Mill Factor, %		100.7					97.8					103.6					104.1					100.3				
Mill Index, %		99.1					103.1					105.5					85.8					89.5				

a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL G

^aThis average includes the readings for one or more specimens which tore beyond the 7/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL I
December, 1962 and January, 1963

Date Made	Mch. No.	Finish	Basis Weight, lb.			Caliper, Points			Bursting Strength, p.s.i. gauge			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine												
			Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.										
11-27-62	WFIS	2	44.0	42.4	43.4	44.0	+0.6	13.0	11.6	12.3	12.0	-0.3	161	100	125	122	-3	336	272	307	315	+8	392	320	358 ^a	375	+17
12- 1-62	WFIS	2	44.0	42.6	43.3	43.8	+0.5	12.8	12.0	12.3	12.6	+0.3	155	100	128	126	-2	376	272	309	300	-9	384	320	360 ^a	388	+28
12-14-62	WFIS	2	44.0	42.4	43.4	43.0	-0.4	14.0	13.0	13.7	13	-0.7	147	92	116	107	-9	360	240	305 ^a	276	-29	368	304	338 ^a	360	+22
12-15-62	WFIS	2	43.6	40.6	42.1	42.8	+0.7	14.0	12.8	13.3	13	-0.3	138	87	116	111	-5	368	264	312	312	0	400	304	348 ^a	372	+24
1- 7-63	WFIS	2	43.4	42.0	42.6	43.3	+0.7	14.2	12.7	13.5	13.5	0.0	140	92	119	116	-3	344	248	292 ^a	276	-16	432	320	357 ^a	378	+21
1-15-63	WFIS	2	44.0	42.4	43.2	44.3	+1.1	14.9	13.8	14.2	14.2	0.0	136	83	110	115	+5	352	248	284	309	+25	384	320	355 ^a	379	+24
Current Mill Average:			43.0			43.5	+0.5	13.2			13.0	-0.2	119			116	-3	301			298	-3	353			375	+22
Cumulative Mill Average:			42.5					13.1					115					307					355				
Mill Factor, %			101.2					100.8					103.5					98.0					99.4				
Mill Index, %			100.2					103.9					108.2					92.9					95.1				

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XIII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL J
December, 1962 and January, 1963

Date Made	Mch. No.	Finish	Basis Weight, lb.			Caliper, points			Bursting Strength, P.S.I. gage			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet												
			Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill										
			Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Diff.						
11-26-62	WFLS	2	44.6	43.4	43.9	42.9	-1.0	12.8	11.8	12.2	12.1	-0.1	118	80	96	104	+ 8	416	312	366 ^a	---	424	352	386 ^a	---	---	---
11-28-62	WFLS	2	44.0	42.4	43.4	43.1	-0.3	12.3	11.4	12.1	12.2	+0.1	131	74	96	108	+12	416	304	371 ^a	---	424	336	381 ^a	---	---	---
12-3-62	WFLS	1	44.6	43.2	44.0	43.5	-0.5	13.6	12.6	13.1	12.8	-0.3	118	83	105	106	+ 1	384	304	337 ^a	---	448	360	396 ^a	---	---	---
12-4-62	WFLS	1	45.0	43.0	44.0	43.8	-0.2	13.7	12.9	13.1	12.7	-0.4	120	70	102	106	+ 4	392	296	349	---	400	328	370 ^a	---	---	---
1-2-63	WFLS	2	44.2	42.4	43.8	43.5	-0.3	13.0	12.0	12.4	12.5	+0.1	121	88	105	107	+ 2	440	288	364	---	424	352	373 ^a	---	---	---
1-3-63	WFLS	1	45.6	43.6	44.6	44.3	-0.3	13.1	12.1	12.8	12.9	+0.1	121	78	100	108	+ 8	464	320	383	---	440	360	398 ^a	---	---	---
Current Mill Average:			44.0	43.5	-0.5	12.6	12.5	-0.1	100	106	+ 6	362						384									
Cumulative Mill Average:			43.5			12.5			104			363						404									
Mill Factor.			101.1			100.8			96.2			99.7						95.0									
Mill Index, %			102.6			99.2			90.9			111.7						103.5									

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XIV
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL K
December, 1962 and January, 1963

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.s.i.			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine												
		Max.	Institute	Mill	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.										
11-15-62	W.F.	44.0	42.2	43.4	43.6	+0.2	13.3	12.0	12.6	12.9	+0.3	125	88	109	104	-5	384	288	343 ^a	315	-28	448	352	387 ^a	366	-17
11-15-62	W.F.	44.0	42.4	43.6	43.8	+0.2	13.1	11.7	12.2	12.0	-0.2	140	98	113	107	-6	416	312	355 ^a	334	-21	448	360	399 ^a	385	-14
12-19-62	W.F.	44.0	42.4	43.6	43.6	0.0	13.1	11.8	12.6	12.8	+0.2	132	93	114	112	-2	472	352	387 ^a	373	-14	448	384	415 ^a	428	+13
12-19-62	W.F.	43.8	42.2	42.8	43.1	+0.3	13.2	11.9	12.5	12.8	+0.3	140	95	117	112	-5	456	320	373 ^a	360	-13	464	360	403 ^a	422	+19
Current Mill Average:		43.4	43.5	+0.1	12.5	12.6	+0.1	113	109	-4	365	346	-19	400	400	0										
Cumulative Mill Average:		42.4			12.2			110				337														
Mill Factor, %		102.4			102.5			102.7				108.3														
Mill Index, %		101.2			98.4			102.7				112.7														

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XV

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL L

December, 1962 and January, 1963

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, Points			Bursting Strength, p.s.i. Edge			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet		
		Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.
11-18-62	WFIS 1	43.9	41.6	42.5	42.5	0.0	13.8	12.1	12.9	12.6	-0.3	126	90	106	108	+2
11-21-62	WFIS 1	42.4	41.8	42.0	42.5	+0.5	13.9	12.5	13.2	12.6	-0.6	120	85	100	107	+7
12- 8-62	WFIS 1	43.4	41.8	42.3	42.2	-0.1	14.0	12.8	13.1	12.5	-0.6	120	95	106	110	+4
12-28-62	WFIS 1	42.4	41.8	42.1	42.1	0.0	13.6	11.9	12.8	12.1	-0.7	129	100	117	117	0
12-28-62	WFIS 1	43.0	41.0	42.2	42.2	0.0	13.8	11.8	12.6	12.1	-0.5	129	93	116	117	+1
1- 5-63	WFIS 1	43.0	41.6	42.4	42.0	-0.4	13.3	11.9	12.5	12.3	-0.2	131	97	113	115	+2
Current Mill Average:		42.3	42.3	0.0	12.9	12.4	-0.5	110	112	+2						
Cumulative Mill Average:		42.4			12.8			109								
Mill Factor, %		99.3			100.8			100.9								
Mill Index, %		98.6			101.6			100.0								
12- 2-62	W.B. -	44.4	42.2	43.5	43.0	-0.5	12.1	10.8	11.7	11.2	-0.5	139	79	109	110	+1
12- 9-62	W.B. -	44.0	42.0	43.2	42.2	-1.0	12.7	11.2	11.9	11.2	-0.7	137	90	109	113	+4
Current Mill Average:		43.3	42.6	-0.7	11.8	11.2	-0.6	109	111	+2						
Cumulative Mill Average:		42.9			11.9			107								
Mill Factor, %		100.9			99.2			101.9								
Mill Index, %		100.9			92.9			99.1								

This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XVI

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL M

12- 2-62	W.B. -	44.4	42.2	43.5	43.0	-0.5	12.1	10.8	11.7	11.2	-0.5	139	79	109	110	+1
12- 9-62	W.B. -	44.0	42.0	43.2	42.2	-1.0	12.7	11.2	11.9	11.2	-0.7	137	90	109	113	+4
Current Mill Average:		43.3	42.6	-0.7	11.8	11.2	-0.6	109	111	+2						
Cumulative Mill Average:		42.9			11.9			107								
Mill Factor, %		100.9			99.2			101.9								
Mill Index, %		100.9			92.9			99.1								

TABLE XVII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL N
December, 1962 and January, 1963

Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.S.I. 4000			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet													
		Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill											
		Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.											
11-12-62	S.F.	7	43.0	41.6	42.2	43.0	11.2	12.0	12.2	+0.2	118	81	102	100	-2	424	288	351	337	-14	432	344	367 ^a	385	-2		
11-23-62	S.F.	7	44.4	42.2	43.7	43.5	-0.2	13.0	12.0	12.4	12.3	-0.1	145	85	111	106	-5	400	320	357 ^a	352	-5	480	352	405 ^a	420	+15
1-2-63	S.F.	7	44.4	43.6	44.0	44.3	+0.3	12.6	11.4	12.0	12.2	+0.2	130	74	109	108	-1	432	320	355 ^a	367	+12	440	368	401 ^a	423	+22
1-14-63	S.F.	7	43.0	40.6	41.7	41.7	0.0	12.2	11.1	11.6	11.8	+0.2	122	81	107	110	+3	392	312	339	356	+17	416	328	385 ^a	401	+16
Current Mill Average:			42.9	43.1	+0.2	12.0	12.1	+0.1					-107	106	-1			350	353	+3			395	407	+12		
Cumulative Mill Average:			42.1			12.6							97					336					377				
Mill Factor, %			101.9			95.2							110.3					104.2					104.8				
Mill Index, %			100.0			94.5							97.3					108.0					106.5				

TABLE XVIII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL O

11-20-62	W.F.	2	43.6	42.0	42.4	43.7	+1.3	12.3	11.8	12.0	11.9	-0.1	132	93	115	114	-1	336	256	307	345	+38	424	320	372 ^a	401	+29
12-15-62	W.F.	2	44.2	43.2	43.9	43.1	-0.8	13.0	12.0	12.6	12.3	-0.3	139	96	119	119	0	392	280	323	312	-11	384	320	355 ^a	351	-4
12-18-62	W.F.	2	43.6	42.2	42.8	43.0	+0.2	12.4	12.0	12.1	11.9	-0.2	136	100	116	116	0	344	280	308 ^a	336	+28	376	328	362 ^a	375	+13
Current Mill Average:			43.0	42.3	+0.3			12.2	12.0	-0.2			116	116	0			313	331	+18				363	376	+13	
Cumulative Mill Average:			43.0					12.1					112					313						353			
Mill Factor, %			100.0					100.8					103.6					100.0						102.8			
Mill Index, %			100.2					96.1					105.5					96.6						97.8			

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XIX

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL P

December, 1962 and January, 1963

Date Made	Mch. No.	Finish	Basis Weight, lb.			Caliber, points			Bursting Strength, P.s.i. range			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet												
			Max.	Institute	Mill	Max.	Institute	Mill	Max.	Institute	Mill	Max.	Institute	Mill	Max.	Institute	Mill										
11-4-62	2	WFLS	42.6	41.8	42.2	42.6	+0.4	13.8	12.7	13.2	13.0	-0.2	124	80	102	105	+3	384	240	336	378	+42	424	352	383 ^a	420	+37
11-26-62	2	WFLS	43.6	42.2	42.6	43.4	+0.8	14.0	13.0	13.5	13.2	-0.3	124	85	99	102	+3	368	304	339	386	+47	448	336	381 ^a	431	+50
12- 7-62	2	WFLS	43.6	41.2	42.5	42.4	-0.1	14.1	13.2	13.8	13.4	-0.4	126	80	98	104	+6	384	248	336	372	+36	440	376	407 ^a	465	+58
12- 8-62	2	----	43.6	42.0	42.6	42.6	0.0	14.8	13.6	14.0	13.0	-1.0	130	90	106	103	-3	368	304	328	382	+54	424	352	379 ^a	464	+85
12- 8-62	2	WFLS	43.4	41.4	42.0	41.9	-0.1	14.1	13.2	13.8	13.2	-0.6	130	79	104	105	+1	400	288	344	347	+ 3	464	344	402 ^a	442	+40
12- 9-62	2	----	42.4	40.2	41.8	42.3	+0.5	14.0	12.7	13.6	12.9	-0.7	125	85	100	102	+2	408	304	350	362	+12	416	352	379 ^a	431	+52
12-16-62	2	WFLS	44.0	41.8	42.9	43.1	+0.2	14.1	13.0	13.7	13.6	-0.1	130	89	112	114	+2	384	240	331	358	+27	432	352	389 ^a	453	+64
1- 2-63	2	WFLS	42.2	41.8	42.0	42.7	+0.7	14.0	12.9	13.4	13.4	0.0	130	73	103	105	+2	376	272	313	335	+22	400	320	356 ^a	456	+100
Current Mill Average:			42.3	42.6	+0.3	13.6	13.2	-0.4	103	105	+2	335	365	+30	384	445	+61										
Cumulative Mill Average:			42.8			13.3			109			323			386												
Mill Factor, %			98.3			102.3			94.5			103.7			99.5												
Mill Index, %			98.6			107.1			93.6			103.4			103.5												

This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XI

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL Q

December, 1962 and January, 1963

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.S.I. gage			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine		
		Max.	Min.	Av.	Institute	Mill	Diff.	Max.	Min.	Av.	Institute	Mill	Diff.	Max.	Min.	Av.
12-7-62	--	44.2	42.2	43.5	43.3	43.3	-0.2	12.9	11.9	12.4	12.2	12.2	-0.2	480	344	397 ^a
12-12-62	--	44.0	42.2	43.3	43.5	43.5	+0.2	13.4	12.2	12.8	12.5	12.5	-0.3	504	392	454 ^a
Current Mill Average:		43.4		43.4		43.4	0.0			12.6	12.4	-0.2		426	408	-18
Cumulative Mill Average:		43.4		43.4		43.4				12.8				416		
Mill Factor, %		100.0				98.4				106.9				102.4		
Mill Index, %		101.2				99.2				98.2				114.8		

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XXI
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL S
December, 1962 and January, 1963

Date Made	Finish	Mch. No.	Basis Weight, lb.			Calliper, Points			Bursting Strength, P.S.I., Edge			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine												
			Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill										
			Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.										
11-14-62	----	1	42.0	41.6	41.9	42.2	+0.6	13.9	13.0	13.3	13.2	-0.1	132	73	106	108	+2	320	272	291	272	-19	392	296	341 ^a	344	+3
11-23-62	W.F.	1	42.2	42.0	42.1	42.2	+0.1	13.1	12.4	12.9	13.1	+0.2	143	87	112	113	+1	352	264	312 ^a	263	-49	400	328	364 ^a	352	-12
11-28-63	W.F.	1	44.0	43.6	43.8	43.2	+0.6	13.8	13.1	13.3	13.4	+0.1	143	86	114	119	+5	384	272	316	261	-55	424	344	378 ^a	364	-14
12-5-62	W.F.	1	43.6	42.0	42.6	42.6	0.0	13.2	12.8	13.0	13.2	+0.2	138	92	116	121	+5	344	264	303	284	-19	408	328	363 ^a	359	-4
12-14-62	W.F.	1	43.6	42.0	42.5	42.6	+0.1	13.0	12.2	12.6	12.8	+0.2	135	80	107	114	+7	320	272	293	243	-50	408	320	355 ^a	330	-25
12-18-62	W.F.	1	43.4	42.0	42.3	43.0	+0.7	13.7	12.8	13.1	13.0	-0.1	138	90	116	112	-4	360	264	311	250	-61	416	328	373 ^a	339	-34
1-1-63	W.F.	1	43.0	42.0	42.2	42.0	-0.2	13.3	13.0	13.1	13.1	0.0	130	80	106	109	+3	336	272	298	270	-28	392	328	362 ^a	341	-21
1-8-63	W.F.	1	42.2	41.8	42.0	42.4	+0.4	13.0	12.1	12.7	13.1	+0.4	129	84	109	114	+5	320	240	276 ^a	269	-7	384	320	334 ^a	356	+22
Current Mill Average:			42.4		42.5	+0.1		13.0	13.1	+0.1			110	114	+4			300	264	-36			359	348	-11		
Cumulative Mill Average:			42.4					12.7					113					291					343				
Mill Factor, %			100.0					102.4					97.3					103.1					104.7				
Mill Index, %			98.9					102.4					100.0					92.6					96.8				

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XXII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL T

December, 1962 and January, 1963

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. base			Elmendorf Tear, g./sheet																
		Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill														
		Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.														
10-26-62	W.F. 3	43.0	42.0	42.3	43.8	+1.5	12.2	11.6	12.0	12.1	+0.1	131	102	119	117	-1	360	288	325	344	+19	400	352	377 ^a	412	+35	
10-28-62	W.F. 3	43.8	42.4	43.4	44.2	+0.8	12.3	11.9	12.1	12.1	0.0	148	107	121	118	-3	400	312	350	335	-15	448	368	393 ^a	419	+26	
11- 4-62	W.F. 3	44.2	42.0	43.3	43.4	+0.1	13.0	12.0	12.5	12.0	-0.5	125	91	106	108	+2	400	272	349 ^a	352	+3	464	352	403 ^a	417	+14	
11- 8-62	W.F. 3	42.4	42.0	42.2	43.4	+1.2	13.0	11.9	12.3	12.0	-0.3	131	91	106	107	+1	384	320	353	350	-3	432	376	405 ^a	411	+6	
Current Mill Average:				42.8		43.7	+0.9		12.2	12.0	-0.2		113	113	0			344	345	+1			394	415	+21		
Cumulative Mill Average:				43.4					12.6				110					342					391				
Mill Factor, %				98.6					96.9				102.7					100.6					100.8				
Mill Index, %				99.8					96.1				102.7					106.2					106.2				

TABLE XXIII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL U

No samples submitted

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XXIV
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL V
December, 1962 and January, 1963

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.S.I.			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet													
		Max.	Min.	Av.	Institute	Max.	Min.	Av.	Institute	Max.	Min.	Av.	Institute	Max.	Min.	Av.	Diff.										
11-29-62	W.F.	-	42.2	41.8	42.0	41.9	-0.1	13.0	12.1	12.5	12.1	-0.4	131	85	108	108	0	336	272	293 ^a	275	-18	384	328	357 ^a	342	-15
11-30-62	W.F.	-	44.0	43.0	43.6	43.1	-0.5	13.1	12.3	12.8	12.1	-0.7	144	94	117	113	-4	368	296	340 ^a	289	-51	408	320	369 ^a	345	-24
12-7-62	W.F.	-	44.4	43.6	44.0	43.9	-0.1	13.0	12.1	12.5	12.2	-0.3	137	98	121	119	-2	368	272	318	325	+7	408	360	383 ^a	361	-22
12-14-62	W.F.	-	42.4	42.0	42.2	42.2	0.0	12.0	11.2	11.6	11.2	-0.4	133	100	114	108	-6	368	304	342 ^a	307	-35	440	296	358 ^a	331	-27
1-3-63	W.F.	-	44.2	42.2	43.4	43.5	+0.1	13.1	12.3	12.8	12.4	-0.4	132	90	108	109	+1	328	264	296 ^a	268	-28	384	312	343 ^a	340	-3
1-4-63	W.F.	-	44.0	42.2	43.4	43.2	-0.2	13.0	11.6	12.2	12.1	-0.1	133	79	109	109	0	360	272	321 ^a	293	-28	400	344	367 ^a	344	-23
1-11-63	W.F.	-	44.0	42.0	42.7	42.8	+0.1	13.0	12.0	12.3	12.0	-0.3	142	86	116	112	-4	320	256	287	288	+1	384	328	357 ^a	339	-18
1-18-63	W.F.	-	44.2	42.6	43.7	43.3	-0.4	12.8	12.0	12.2	12.0	-0.2	130	102	114	113	-1	360	272	311	280	-31	376	320	348 ^a	333	-15
Current Mill Average:			43.1		43.0	-0.1			12.4	12.0	12.0	-0.4		113	111	111	-2		314	291	291	-23			360	342	-18
Cumulative Mill Average:			43.1						12.7					114					322						359		
Mill Factor, %			100.0						97.6					99.1					97.5						100.3		
Mill Index, %			100.5						97.6					102.7					96.9						97.0		

This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XIV

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL W

December, 1962 and January, 1963

Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.S.I. Range			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine													
		Institute	Max.	Min.	Institute	Max.	Min.	Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.										
12-8-62	-	W.B.	44.0	42.0	43.1	42.8	-0.3	13.6	12.4	13.1	12.6	-0.5	121	85	106	111	+5	416	320	357	421	+64	448	360	392 ^a	392	0
11-26-62	-	W.B.	44.0	42.2	43.3	43.2	-0.1	13.8	12.8	13.3	12.9	-0.4	129	84	105	105	0	440	336	382 ^a	437	+55	472	360	421 ^a	405	-16
1-3-62	-	W.B.	44.4	42.4	43.5	43.3	-0.2	13.4	12.1	12.8	13.0	+0.2	123	89	106	106	0	432	296	349	444	+95	488	344	399 ^a	416	+17
1-6-63	-	W.B.	44.2	42.6	43.2	42.7	-0.5	13.0	11.9	12.4	12.4	0.0	123	84	106	106	0	392	320	358 ^a	417	+59	448	336	388 ^a	417	+29
1-3-63	-	W.B.	43.8	41.8	42.8	42.4	-0.4	12.9	11.8	12.2	12.1	-0.1	132	88	111	114	+3	400	336	364 ^a	447	+83	456	416	433 ^a	393	-40
1-10-63	-	W.B.	44.0	42.6	43.2	43.4	+0.2	13.6	12.1	12.8	12.8	0.0	111	74	98	104	+6	464	304	381 ^a	416	+35	472	352	421 ^a	452	+41
Current Mill Average:			43.2	43.0	-0.2			12.8	12.6	-0.2			105	108	+3			365	430	+65			407	413	+6		
Cumulative Mill Average:			43.5					12.8					108					373					414				
Mill Factor, %			99.3					100.0					97.2					97.9					98.3				
Mill Index, %			100.7					100.8					95.5					112.7					109.7				

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

and mill data described above, Tables IV through XXV also include under each test heading a column labeled "Diff." This column shows the differences between averages obtained at the Institute and those obtained at the mills. The data obtained at the Institute are used as the reference in calculating these differences.

The average test results obtained at the Institute and at the mills are summarized in Table XXVI for the current period. Shown in this table for each mill is the difference for each test between the current mill average based on Institute data and the current mill average based on mill data. In addition, for each test the maximum difference encountered in comparing Institute and mill averages for individual sample lots is shown. In Table XXVII, the differences for each test between the current mill averages based on Institute data and those based on mill data shown in Table XXVI have been converted to per cent (based on Institute data as a reference). In addition, for purposes of comparison, the percentage differences from the previous bimonthly report are shown.

A summary of the agreement obtained in the comparisons of Institute and mill test data for the current period is shown in Table XXVIII. This summary is based on the results given in Table XXVII. The tabulated data show the number of mills, and the percentage of all mills which this number represents, whose average test results for the current period fall within designated percentages from the average test results obtained at the Institute. It may be noted from this summary that agreement between the results obtained at the Institute and those obtained at the mills was generally very good.

Preconditioning and conditioning data pertinent to the test results obtained at the mills during the current period are given in Table XXIX.

TABLE XXVI
SUMMARY OF TEST RESULT COMPARISONS (Average Mill and Institute Results) For December, 1962 and January, 1963

Mills ^a	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
No. of sam- ples compared	5	8	20	0	4	4	0	7	6	6	4	6	2	4	3	8	2	8	4	4	0	8	5
	<u>Basis Weight</u>																						
Institute	43.8	43.2	42.5	42.5	42.5	42.5	42.7	42.7	43.0	44.0	43.4	42.3	43.3	42.9	43.0	42.3	43.4	42.4	42.8	43.1	43.2	43.0	43.2
Mill	43.1	43.3	42.7	42.5	42.2	42.8	42.8	42.8	43.5	43.5	43.5	42.3	42.6	43.1	43.3	42.6	43.4	42.5	43.7	43.0	43.0	43.0	43.0
Av. diff. ^b	-0.7	+0.1	+0.2	0.0	-0.3	+0.1	+0.5	+0.5	-0.5	+0.1	+0.1	0.0	-0.7	+0.2	+0.3	+0.3	0.0	+0.1	+0.9	-0.1	-0.1	-0.2	-0.2
Max. diff. ^c	-1.0	+0.8	+0.6	+0.7	-0.5	+0.3	+1.1	+0.3	-1.0	+0.3	+0.5	+0.5	-1.0	+0.8	+1.3	+0.8	+0.2	+0.7	+1.5	-0.5	-0.5	-0.5	-0.5
	<u>Caliper</u>																						
Institute	12.4	12.9	12.3	12.6	13.1	13.0	13.2	12.6	12.5	12.5	12.9	11.8	12.0	12.2	12.2	13.6	12.6	13.0	12.2	12.4	12.8	12.8	12.8
Mill	12.2	12.7	12.2	12.3	12.6	13.1	13.0	12.5	12.6	12.6	12.4	11.2	12.1	12.0	12.0	13.2	12.4	13.1	12.0	12.0	12.6	12.6	12.6
Av. diff. ^b	-0.2	-0.2	-0.1	-0.3	-0.5	+0.1	-0.2	-0.1	+0.1	-0.5	-0.5	-0.6	+0.1	-0.2	-0.2	-0.4	-0.2	+0.1	-0.2	-0.4	-0.2	-0.2	-0.2
Max. diff. ^c	-0.4	-0.4	-0.5	-0.6	-0.6	+0.2	-0.7	-0.4	+0.3	-0.7	-0.7	-0.7	+0.2	-0.3	-0.3	-1.0	-0.3	+0.4	-0.5	-0.7	-0.7	-0.5	-0.5
	<u>Bursting Strength</u>																						
Institute	112	105	107	103	116	111	119	100	113	110	109	107	107	107	116	103	108	110	113	113	113	105	105
Mill	113	106	110	106	112	111	116	106	109	112	111	106	111	106	116	105	107	114	113	113	111	108	108
Av. diff. ^b	+1	+1	+3	+3	-4	0	-3	+6	-4	+2	+2	-1	-1	-1	0	+2	-1	+4	0	-2	-2	+3	+3
Max. diff. ^c	+6	-5	+7	+5	-6	-4	-9	+12	-6	+7	+4	-5	-5	-5	-1	+6	-2	+7	-3	-6	-6	+6	+6
	<u>Tearing Strength, in</u>																						
Institute	304	317	304	308	278	340	301	362	365	338	370	350	350	350	313	335	413	300	344	314	365	365	365
Mill	300	299	283	334	293	327	298	--	346	313	304	353	353	353	331	365	368	264	345	291	430	430	430
Av. diff. ^b	-4	-18	-21	+26	+15	-13	-3	--	-19	-25	-66	+3	+3	+3	+18	+30	-45	-36	+1	-23	+65	+65	+65
Max. diff. ^c	+25	-28	-64	+42	+47	-25	-29	--	-28	-51	-69	+17	+17	+17	+38	+54	-67	-61	+19	-51	+95	+95	+95
	<u>Tearing Strength, cross</u>																						
Institute	356	355	361	367	332	383	353	384	400	393	396	395	395	395	363	384	426	359	394	360	407	407	407
Mill	359	363	368	401	351	393	375	--	400	375	381	407	407	407	376	445	408	348	415	342	413	413	413
Av. diff. ^b	+3	+8	+7	+34	+19	+10	+22	--	0	-18	-15	+12	+12	+12	+13	+61	-18	-11	+21	-18	+6	+6	+6
Max. diff. ^c	+10	+18	+45	+40	+36	+37	+28	--	+19	-37	-16	+22	+22	+22	+29	+100	-32	34	+35	-27	+41	+41	+41

^aComparison based on averages involved only those samples on which mill test data were submitted.
^bAverage difference is the difference between the Institute mill average and the mill average based on mill test data.
^cMaximum difference encountered in comparing the Institute average and the mill averages for any sample submitted by that particular mill.

TABLE XXVII

COMPARISON OF INSTITUTE-MILL DIFFERENCES FOR DECEMBER, 1962 AND JANUARY, 1963

Average Difference, per cent													
Mill	Period	Basis Weight	Cal-iper	Bursting Strength	Tear, in	Tear, cross	Mill	Period	Basis Weight	Cal-iper	Bursting Strength	Tear, in	Tear, cross
A	Aug. -Sept.	-0.2	-0.8	+2	+1	+7	L	Aug. -Sept.	+0.7	-2	+5	+10	+9
	Oct. -Nov.	-0.9	-4	0	-6	-2		Oct. -Nov.	+1	-4	+7	+5	+2
	Current	-2	-2	+0.9	-1	+0.8		Current	0	-4	+2	-7	-5
B	Aug. -Sept.	0	-3	+0.9	-5	+5	M	Aug. -Sept.	-0.5	-4	+2	-4	+2
	Oct. -Nov.	-0.7	-4	-2	-2	+7		Oct. -Nov.	-0.2	-3	+5	-8	-1
	Current	+0.2	-2	+1	-6	+2		Current	-2	-5	+2	-18	-4
C	Aug. -Sept.	+0.7	-0.8	+2	-2	+5	N	Aug. -Sept.	-0.5	-5	+6	+5	+2
	Oct. -Nov.	+1	-0.8	+0.9	-9	-0.8		Oct. -Nov.	+1	0	0	-1	+2
	Current	+0.5	-0.8	+3	-7	+2		Current	+0.5	+0.8	-0.9	+0.9	+3
D	Aug. -Sept.	--	--	--	--	--	O	Aug. -Sept.	-0.5	-2	0	+2	+2
	Oct. -Nov.	--	--	--	--	--		Oct. -Nov.	+0.5	-2	-2	+1	-0.5
	Current	--	--	--	--	--		Current	+0.7	-2	0	+6	+4
E	Aug. -Sept.	-0.5	+0.8	0	+8	+12	P	Aug. -Sept.	+0.9	-2	+2	+15	+16
	Oct. -Nov.	+0.9	-2	+4	+5	+9		Oct. -Nov.	+0.7	-4	-0.9	+9	+10
	Current	0	-2	+3	+8	+9		Current	+0.7	-3	+2	+9	+16
F	Aug. -Sept.	+0.2	-4	+7	+20	+16	Q	Aug. -Sept.	--	--	--	--	--
	Oct. -Nov.	+0.5	-5	-2	+7	+13		Oct. -Nov.	+0.5	-2	+3	-16	-10
	Current	-0.7	-4	-3	+5	+6		Current	0	-2	-0.9	-11	-4
G	Aug. -Sept.	--	--	--	--	--	S	Aug. -Sept.	-0.5	-0.7	+2	-8	-1
	Oct. -Nov.	--	--	--	--	--		Oct. -Nov.	0	-2	+3	-13	-4
	Current	--	--	--	--	--		Current	+0.2	+0.8	+4	-12	-3
H	Aug. -Sept.	+0.5	0	+2	+3	+3	T	Aug. -Sept.	+0.9	-4	0	+3	+6
	Oct. -Nov.	+0.7	-0.8	+3	+2	+3		Oct. -Nov.	+2	-2	+0.9	+5	+3
	Current	+0.2	+0.8	0	-4	+3		Current	+2	-2	0	+0.3	+5
I	Aug. -Sept.	+1	-2	+4	+2	+11	U	Aug. -Sept.	--	--	--	--	--
	Oct. -Nov.	+2	-2	0	+2	+10		Oct. -Nov.	--	--	--	--	--
	Current	+1	-2	-3	-1	+6		Current	--	--	--	--	--
J	Aug. -Sept.	+0.2	-0.8	+6	--	--	V	Aug. -Sept.	-0.5	-3	+0.9	-4	-3
	Oct. -Nov.	0	-2	+7	--	--		Oct. -Nov.	0	-4	-4	-5	-5
	Current	-1	-0.8	+6	--	--		Current	-0.2	-3	-2	-7	-5
K	Aug. -Sept.	+0.5	-2	-3	-5	+2	W	Aug. -Sept.	-0.9	-2	+4	+11	+0.5
	Oct. -Nov.	+1	-2	-3	-6	+2		Oct. -Nov.	+0.7	-4	+2	+11	+5
	Current	+0.2	+0.8	-4	-5	0		Current	-0.5	-2	+3	+18	+1

TABLE XXVIII
SUMMARY OF AGREEMENT BETWEEN INSTITUTE AND MILL RESULTS
(December, 1962 and January, 1963)

		Average Percentage Difference Between Institute and Mill Test Results									
		+0.5	+1	+2	+3	+4	+5	+7.5	+10	+18	
Basis weight	Number of mills	11	16	19							
	Percentage of all mills	57.9	84.2	100.0							
Caliper	Number of mills	0	6	14	16	18	19				
	Percentage of all mills	0.0	31.6	73.7	84.2	94.7	100.0				
Bursting strength	Number of mills	3	7	11	16	18	18	19			
	Percentage of all mills	15.8	36.8	57.9	84.2	94.7	94.7	100.0			
Tearing strength, in	Number of mills	1	4	4	4	5	7	12	14	18	
	Percentage of all mills	5.6	22.2	22.2	22.2	27.8	38.9	66.7	77.8	100.0	
Tearing strength, cross	Number of mills	1	3	5	8	11	14	16	17	18	
	Percentage of all mills	5.6	16.7	27.8	44.4	61.1	77.8	88.9	94.4	100.0	

TABLE XXIX

PRECONDITIONING AND CONDITIONING DATA FOR MILL TESTS
DECEMBER, 1962 AND JANUARY, 1963

Mill Code	Preconditioning			Conditioning		
	R.H., %	Temp., °F.	Time, hr.	R.H., %	Temp., °F.	Time, hr.
A	36-96	45-64	0.5	50	73	24
B	50-52	71-74	48-96	50-52	71-74	3
C	35-50	73	24	50	73	48
D	No samples submitted					
E		None		55-56	70-72	--
F	50	73	120	50	73	120
G	No samples submitted					
H	50	73	24	50	73	24
I	50	72	24		None	
J		None		50	73	48-192
K		None		50	73	24
L	50	70	24	50	70	24
M		None		50-52	73-74	48
N	50	73	24		None	
O		None		50	73	24
P	50	70-72	120	50	70-72	120
Q	32	100	24	50	73	24
S		None		20-65	35-75	--
T		None		50	73	24
U	No samples submitted					
V	34-35	76-78	8	48-52	71-72	16
W	50-52	72	48	50	73	48-48+

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